

IN THE CLAIMS

The following listing of the claims is provided in accordance with 37 C.F.R. §1.121.

1. (currently amended) A method for processing image data comprising:
identifying a first group of pixels exhibiting a first characteristic, wherein the first characteristic corresponds to structures in segmenting the image data into a first mask representing structure, a second mask representing non-structure, and a third mask where structure and non-structure overlap, wherein each mask has the same dimensions as the image data and comprises pixels having values assigned based on the segmentation of the image data;
~~identifying a second group of pixels exhibiting a second characteristic, wherein the second characteristic corresponds to non-structures in the image data;~~
identifying a third group of pixels exhibiting the first and second characteristics;
processing the first group of pixels present in the first mask using in accordance with at least a first operation but not a second operation;
~~processing the second group of pixels present in the second mask using in accordance with at least a the second operation but not the first operation; and~~
processing the third group of pixels present in the third mask using both the in accordance with the at least first and second operations; and
~~blending values resulting from processing of the third group of pixels by the first process with values resulting from processing of the third group of pixels by the second process.~~
2. (currently amended) The method of claim 30 4, comprising combining the blended values with values of pixels from the first and second groups resulting from their respective processing.
3. (canceled)

4. (currently amended) The method of claim 1, comprising establishing first and second thresholds, and wherein the first group of pixels are identified as having values falling above the first threshold, the second group of pixels are identified as having values falling below the second threshold, and the third group of pixels are identified as having values between the first and second thresholds.

5. (original) The method of claim 4, wherein the thresholds are gradient thresholds.

6. (currently amended) The method of claim 30 [[4]], wherein the blending is performed ~~based upon relative proximity of each pixel value to the first and the second threshold~~ using a weighting factor determined in accordance with the equation:

$$A_i = (G_i)(T_2)/(T_1 - T_2)$$

where A_i is the weight employed at a pixel i , G_i is the gradient intensity value at the pixel i , T_1 is a first threshold, and T_2 is a second threshold.

7. (original) The method of claim 6, wherein the blending is based on a linear function.

8. (canceled)

9. (original) The method of claim 1, wherein the operations are selected from a group consisting of enhancement, sharpening, smoothing, deconvolution, extrapolation, interpolation, compression, digital half-toning, and contrast matching.

10. (canceled)

11. (currently amended) A method for processing image data comprising:
establishing first and second thresholds;
~~identifying~~ generating a first mask image wherein pixels of the first mask image that correspond to pixels of the image data having values ~~group of pixels having a value falling~~ above the first threshold are set to a first predetermined value, wherein the first threshold corresponds to structures in the image data;
~~identifying~~ generating a second mask image wherein pixels of the second mask image that correspond to pixels of the image data having values ~~group of pixels having a value falling~~ below the second threshold are set to a respective predetermined value equal to or different than the first predetermined value, wherein the second threshold corresponds to non-structures in the image data;
~~identifying~~ generating a third mask image wherein pixels of the third mask image that correspond to pixels of the image data having values ~~group of pixels having a value~~ between the first and second thresholds are set to a third respective predetermined value equal to or different than the first predetermined value;
processing the ~~first group of~~ pixels of the first mask image in accordance with ~~at least~~ a first operation and not the second operation;
processing the ~~second group of~~ pixels of the second mask image in accordance with ~~at least~~ a second operation and not the first operation; and
processing the ~~third group of~~ pixels of the third mask image in accordance with the ~~at least~~ first and second operations.

12. (original) The method of claim 11, comprising blending values resulting from processing of the third group of pixels by the first process with values resulting from processing of the third group of pixels by the second process.

13. (original) The method of claim 11, wherein the thresholds are gradient thresholds.

14. (previously presented) The method of claim 12, wherein the blending is performed based upon relative proximity of each pixel value to the first and the second threshold.

15. (previously presented) The method of claim 12, wherein the blending is based on a linear function.

16. (canceled)

17. (original) The method of claim 11, wherein the operations are selected from a group consisting of enhancement, sharpening, smoothing, deconvolution, extrapolation, interpolation, compression, digital half-toning, and contrast matching.

18. (original) The method of claim 11, wherein the third group of pixels are processed in accordance with the first operation along with the first group of pixels, and are processed in accordance with the second operation along with the second group of pixels.

19. (currently amended) The method of claim 12 ~~44~~, comprising combining the blended values with values of pixels from the first and second groups resulting from their respective processing.

20. (currently amended) A system for processing image data comprising:
a data repository for storing image data;
a processing circuit configured to access image data from the repository, to generate a first mask image, a second mask, and a third mask based on a segmentation of the image data ~~separate the data representative of pixels into first and second groups and an overlapping group, to process the first mask image using a first operation and not a second operation and the second mask image using a second operation and not a first operation~~ groups in accordance with first and second

operations, respectively, and to process the third mask image using both the first operation and the second operation group in accordance with both the first and second operations, and to combine the results of the processing to obtain processed image data, wherein the first group corresponds to structures in the image data and the second group corresponds to non-structures in the image data.

21. (original) The system of claim 20, further comprising an operator workstation for configuring the operations and for viewing images resulting from the processing.

22. (original) The system of claim 20, further comprising an image data acquisition system for generating the image data.

23. (original) The system of claim 22, wherein the image data acquisition system is selected from a group consisting of MRI systems, CT systems, PET systems, ultrasound systems, X-ray systems and photographic systems.

24. (currently amended) A system for processing image data comprising:
means for segmenting the image data into a first mask representing structure, a second mask representing non-structure, and a third mask where structure and non-structure overlap, wherein each mask has the same dimensions as the image data and comprises pixels having values assigned based on the segmentation of the image data identifying a first group of pixels exhibiting a first characteristic, wherein the first characteristic corresponds to structures in the image data;
means for identifying a second group of pixels exhibiting a second characteristic, wherein the second characteristic corresponds to non-structures in the image data;
means for identifying a third group of pixels exhibiting the first and second characteristics;
means for processing the first group of pixels present in the first mask using in accordance with at least a first operation but not a second operation;
means for processing the second group of pixels present in the second mask using in accordance with at least a the second operation but not the first operation; and

~~means for processing the third group of pixels present in the third mask using both the in-~~
~~accordance with the at least first and second operations; and~~

~~means for blending values resulting from processing of the third group of pixels by the first~~
~~process with values resulting from processing of the third group of pixels by the second process.~~

25. (currently amended) A system for processing image data comprising:

means for establishing first and second thresholds;

means for ~~identifying~~ generating a first mask image wherein pixels of the first mask image
that correspond to pixels of the image data having values ~~group of pixels having a value~~ falling
above the first threshold are set to a first predetermined value, wherein the first threshold
corresponds to structures in the image data;

means for ~~identifying~~ generating a second mask image wherein pixels of the second mask
image that correspond to pixels of the image data having values ~~group of pixels having a value~~
~~falling~~ below the second threshold are set to a respective predetermined value equal to or different
than the first predetermined value, wherein the second threshold corresponds to non-structures in
the image data;

means for ~~identifying~~ generating a third mask image wherein pixels of the third mask image
that correspond to pixels of the image data having values ~~group of pixels having a value~~ between
the first and second thresholds are set to a third respective predetermined value equal to or different
than the first predetermined value;

means for processing the ~~first group of~~ pixels of the first mask image in accordance with at
~~least~~ a first operation and not the second operation;

means for processing the ~~second group of~~ pixels of the second mask image in accordance
with at least a second operation and not the first operation; and

means for processing the ~~third group of~~ pixels of the third mask image in accordance with
the at least first and second operations.

26. (currently amended) A computer storage medium storing therein a computer ~~program~~ executable code for processing image data comprising:

machine readable code stored on the at least one medium for carrying out routines for identifying a first group of pixels exhibiting a first characteristic, identifying a second group of pixels exhibiting a second characteristic, identifying a third group of pixels exhibiting the first and second characteristics, segmenting a set of image data into a first mask representing structure, a second mask representing non-structure, and a third mask where structure and non-structure overlap, wherein each mask has the same dimensions as the image data and comprises pixels having values assigned based on the segmentation of the image data, processing the first group of pixels present in the first mask using in accordance with at least a first operation but not a second operation, processing the second group of pixels present in the second mask using in accordance with at least the second operation but not the first operation, and processing the third group of pixels present in the third mask using both the in accordance with the at least first and second operations, and blending values resulting from processing of the third group of pixels by the first process with values resulting from processing of the third group of pixels by the second process, wherein the first characteristic corresponds to structures in the image data and the second characteristic corresponds to non-structures in the image data.

27. (currently amended) A computer storage medium storing therein a computer ~~program~~ executable code for processing image data comprising:

machine readable code stored on the at least one medium for carrying out routines for establishing first and second thresholds, ~~identifying~~ generating a first mask image wherein pixels of the first mask image that correspond to pixels of the image data having values group of pixels having a value falling above the first threshold are set to a first predetermined value, identifying generating a second mask image wherein pixels of the second mask image that correspond to pixels of the image data having values group of pixels having a value falling below the second threshold are set to a respective predetermined value equal to or different than the first predetermined value, identifying generating a third mask image wherein pixels of the third mask image that correspond to

~~pixels of the image data having values~~ ~~group of pixels having a value~~ between the first and second thresholds are set to a third respective ~~predetermined value equal to or different than the first~~ ~~predetermined value~~, processing the ~~first group of pixels of the first mask image~~ in accordance with ~~at least a first operation~~ ~~and not the second operation~~, processing the ~~second group of pixels of the second mask image~~ in accordance with ~~at least a second operation~~ ~~and not the first operation~~, and processing the ~~third group of pixels of the third mask image~~ in accordance with the ~~at least first and second operations~~, wherein the first threshold corresponds to structures in the image data and the second threshold corresponds to non-structures in the image data.

28. (previously presented) A computer memory device storing an image produced by the method of claim 1.

29. (previously presented) A computer memory device storing an image produced by the method of claim 11.

30. (new) The method of claim 1, comprising blending values resulting from processing of the third group of pixels by the first process with values resulting from processing of the third group of pixels by the second process.